

State of Louisiana  
Department of Transportation and Development (DOTD)  
Materials and Testing Section Qualification Procedure  
for  
Qualified Products List 7

**PORTLAND CEMENT, PORTLAND-POZZOLAN CEMENT,  
AND PORTLAND BLAST-FURNACE SLAG CEMENT**

**MATERIAL SPECIFICATION REFERENCE:**

DOTD Standard Specifications, Supplemental Specifications, and Special Provisions, Subsections 1001.01, 1001.02, & 1001.04 (copies attached).

**PRELIMINARY REQUIREMENTS:**

The manufacturer shall submit a standard "Qualified Product Evaluation Form" (copy attached) and a letter of request for source approval to the DOTD Materials and Testing Section Coordinator listed below. In addition, the following shall be submitted for each plant location to be qualified:

1. A standard "Qualified Product Evaluation form."
2. An outline of the plant's quality assurance sampling and testing program.
3. Name and address of Laboratory performing quality control test and a copy of their Cement Concrete Reference Laboratory (CCRL) inspection reports.
4. Foreign sources shall meet all the requirements for source approval and supply a letter of authorization to their representative in the United States who will assume full responsibility for the handling and quality control of their cement. A copy of this letter shall be submitted to the Materials and Testing Section. Documentation submitted for source approval, such as letters, test reports, quality control plans, product data sheets, etc. , shall be submitted in English.

Product Data Sheets - Manufacturer is to include a Material Safety Data Sheet (MSDS).

Certification and/or Test Reports

The manufacturer shall provide a notarized Certificate of Analysis showing actual test properties (both physical and chemical) that are representative of the cement being produced for five samples representing the finish cement product in a five-day period. Individual samples for initial qualification shall not be combined into a composite sample. *Cement manufactures usina cement with **process additions*** shall submit test results for the cement portion of ASTM C 465 to the Department for review and approval. All testing conducted for the certificate of analysis shall be performed by a laboratory which has been accredited by the American Association of State Highway and Transportation Officials (AASHTO).

Samples (to be furnished at no cost to the Department)

Submit five samples 5 kg each (10 lbs. each) representing the finished cement produced in a five-day period.

Submit a 5 kg (10-lbs.) representative sample of fly ash or bottom ash used in the production of Type IP cement, if applicable.

Submit a 5 kg (10-lbs.) representative sample of ground granulated blast-furnace slag used in the production of Type IS cement, if applicable.

Samples are to be shipped in a 4-Liter (1 Gallon) metal can with resealable lids.

The Department reserves the right to send a representative to make an on-site inspection of the plant's facilities with emphasis on the method of sampling and handling of samples after they are taken.

## **TEST REQUIREMENTS:**

### Laboratory Testing

Laboratory testing will be conducted by a laboratory which is accredited by AASHTO. Note: Individual samples for initial qualification shall not be combined into a composite sample.

A complete analysis, both physical and chemical, will be conducted on each qualification sample in accordance with the following:

- 1) Portland Cement will be tested in accordance with AASHTO Designation: M 85 and must conform to the requirements for Type I cement, with the exception of fineness as shown in Subsection 1001.01 of the Standard, Supplemental Specifications, and Special Provisions. Additional types of Portland cement will be tested in accordance with AASHTO Designation: M 85.
- 2) Portland-Pozzolan Cement will be tested in accordance with AASHTO Designation: M 240 and must conform to the requirements for Type IP cement, with the exception of fly ash or bottom ash content as shown in Subsection 1001.02 of the Standard, Supplemental Specifications, and Special Provisions.
- 3) Portland blast-furnace slag Cement will be tested in accordance with AASHTO Designation: M 240 and must conform to the requirements for Type IS cement.
- 4) Fly ash or bottom ash will be tested in accordance with AASHTO Designation: M 295 and must conform to the requirements for Class C or F Pozzolan with the exception of loss on ignition as shown in Subsection 1001.02 of the Standard, Supplemental Specifications, and Special Provisions.
- 5) All cement will be tested for alkali content.

### Field Evaluation

The Department may require an inspection of the plant to review methods of sampling, testing and handling of cement.

Evaluation Time

Laboratory testing - 4 weeks

Field Evaluation - 2 weeks

**GENERAL:**

Upon completion of the evaluation, the manufacturer will be notified in writing concerning the results of the evaluation and whether the plant will or will not be added to the Qualified Products List.

If approved, the manufacturer is required to submit a list to the DOTD Materials and Testing Section Coordinator showing plant and terminal representatives authorized to:

- 1) Sample cement in accordance with this procedure.
- 2) Sign Cement Certificate of Delivery forms which must be completed for each shipment.
- 3) Sign Certificates of Analysis for monthly mill samples as defined herein.

Other requirements for approved plants are as follows:

1. Effective Quality Control Program:

The plant's quality control program shall be sufficient to insure that the finished cement possesses uniform characteristics within the Department's specifications. An accurate record of test results representing a specific production period not to exceed a 24-hour production period shall be maintained by the plant.

Minimum requirements of the quality control program shall be as follows:

- a) Individual samples shall be representative of the cement stream into bulk storage and shall be obtained at a minimum rate of one sample per 360 Mg (376 tons) of finished cement. The samples shall be secured by the "grab" or "continuous" method in accordance with AASHTO Designation: T 127.
- b) Daily composite test samples shall be prepared in accordance with the procedure outlined in AASHTO Designation: T 127. Daily composite test samples shall not represent more than a 24-hour production period.

c) All chemical and physical tests (including alkali content), required by AASHTO Designation: M 85 or AASHTO Designation: M 240 shall be conducted on each composite test sample. Deletion of specific tests or a reduction in the testing rate for a specific test may be approved by the Department's Materials Engineer Administrator. For Type IP cement, all physical and chemical tests shall be conducted on fly ash or bottom ash in accordance with AASHTO Designation: M 295 on a semiannual basis when fly ash or bottom ash is obtained from the same source. Tests shall also be conducted on all new sources of Pozzolan or on the same source if there is a radical change in composition.

2. Provide Monthly Mill Samples And Mill Reports:

Each cement plant must provide a monthly cement sample of Type I cement to the Department's Materials Section on a continuous basis in order to maintain source approval. At the end of each calendar month, equal portions of the composite samples outlined above shall be composite and blended to obtain the monthly mill sample. This composite sample shall be continually split until a 10 kg (20-lbs.) sample is obtained. Half of the 10 kg (20-lbs.) sample shall be sent to the Materials Section and the other half retained at the plant. The producer shall forward complete physical and chemical analyses obtained on the retained sample to the DOTD Contact upon completion of 7-day compressive strength tests.

*Process additions* may be used in the amount not to exceed 3% by weight (mass) of portland cement clinker. Cement with process additions shall be tested for the requirements of the cement portion of ASTM C 465 and monthly test results submitted to the Department.

The mill sample for Type I cement shall be submitted to the Materials and Testing Section regardless of whether cement is being produced for Louisiana projects.

3. Maintain Test Report Data:

All approved cement types will be tested by the Mill and test data for those samples will be kept on file at the Mill for a period of three years in accordance with AASHTO R-18.

4. Maintain List of Authorized Representatives:

All approved mills and terminals shall submit and maintain a list of representatives, telephone numbers and e-mail address of personnel authorized to sign documents pertaining to the certification, testing, and shipment of cement. Also, the mill is to provide the name, telephone numbers and e-mail address of the person(s) responsible for monthly mill samples and monthly test reports.

5. Allow Periodic Inspections by Department Personnel:

The Department may conduct periodic inspections of plant and/or terminal facilities with emphasis on sampling and testing procedures, at the Department's discretion. If a plant inspection is undertaken, the inspector shall have entry at all times to such parts of the plant as may concern the manufacturing, sampling, and testing of cement, and shall also have the cooperation and assistance of plant personnel during the inspection.

When plants are periodically inspected by AASHTO, the Department may elect to accept a copy of the latest CCRL report accompanied by documentation of resolutions of any discrepancies in lieu of the above-mentioned inspection. When used in lieu of plant inspections, CCRL reports will be treated with strict confidentiality.

**DISTRIBUTION OF CEMENT:**

1. Provide Cement Certificate of Delivery forms for each Shipment:

A completed Cement Certificate of Delivery form, supplied by the Department, shall accompany all shipments of cement intended for use on state projects including shipments to distribution terminals.

A copy of each form shall also be sent to the Materials Engineer Administrator. This form shall be signed by an authorized plant representative. The terminal manager shall keep the certificate on file and issue a new certificate with each shipment to state projects with a copy of the new certificate mailed to the Materials Engineer Administrator. The terminal's records and operations must be such that the cement handled is traceable to a reasonable production period. The cement Certificate of Delivery records shall be maintained for a period of 3 years.

2. Seal Conveyances:

The manufacturer's seals shall be placed on all outlets of railroad cars and barges and on discharge ends of truck transports delivering cement to Department projects. This seal must be placed immediately after loading and in the presence of the manufacturer's or terminal's authorized representative. The seals shall be intact and in place upon arrival at the destination.

The Department's authorized representative shall observe the removal of seals and verify that the seal numbers are the same as listed on the certifications which accompany the shipment. In the event that cement is unloaded during non-working hours or delivered to a commercial concrete plant, it will be the responsibility of the designated plant representative to verify that all conveyances were properly sealed.

**DISTRIBUTION OF FOREIGN CEMENT:**

1. The representative/distributor of foreign cement shall adhere to all applicable requirements for Qualified Products List No. 7.
2. The representative/distributor shall submit a Quality Control Program to show methods of product distribution, traceability, location of plants and terminals, a list of authorized signatures to sign all documents, and a flow chart that shows distribution of cement from the Plant to the job site.
3. Foreign source cement shipments shall be accompanied by a completed cement Certificate of Delivery, and conveyances shall be sealed with a manufacturer's seal. All requirements listed in the Distribution of Cement section shall also be adhered to.
4. No mixing of cement from different sources shall be allowed in shipping or storage of cement.
5. Foreign source cement shipments shall be sampled and tested at the time of vessel loading and again upon arrival at the United States ports. The vessel shall be sampled at least three locations in the vessel and composited. The 5-gallon composite will be split into two samples. One sample shall be tested by the distributor and one will be retained. Within the first 8-week period, the test reports for each shipment to the United States ports shall be mailed to the Materials Engineer Administrator.
6. Test reports for shipment(s) received after the initial 8-week period shall be maintained on file by the representative/distributor for a period of 3 years in accordance with AASHTO R-18. The cement Certificate of Delivery records shall be maintained for a period of 3 years. These documents shall be made available to the Department upon request.

7. The Department may conduct periodic inspections of distribution facilities and shipping records. Department personnel shall have the cooperation and assistance of the company's facility personnel during all inspections.
8. The foreign cement company and their distributor shall be responsible for the quality of the cement they supply for use on state projects. Failure to comply with all the Department's requirements can result in the removal of the foreign cement company from the Qualified Products List No. 7, and the distributor's approval to distribute cement to state projects shall be revoked.

**PROJECT SAMPLING REQUIREMENTS:**

Project Sampling & Acceptance:

1. Verification Tests

The Department's project personnel will sample shipments to State projects in accordance with the Department's Materials Sampling Manual. These samples will be submitted to the Materials Section for testing in accordance with AASHTO Designation: M 85 modified as shown in Subsection 1001.01 or AASHTO Designation: M 240 modified as shown in Subsection 1001.02 of the Standard and Supplemental Specifications.

2. Acceptance

Sealed shipments of cement will be accepted by project personnel based on properly completed Cement Certificate of Delivery forms signed by an authorized plant or terminal representative. The Project Engineer, however, will be required to obtain verification samples as indicated above.

3. Alternate Acceptance of Foreign Cement for a one-time Shipment

The QPL approved cement company on the Qualified Products List can purchase cement from a foreign cement source provided that the cement of a one-time shipment meets the Department's requirements including the following:

The QPL approved cement company shall submit a letter of request for shipment approval along with Materials Safety Data Sheet to DOTD Materials and Testing Coordinator.

The cement shipment must be sampled in accordance with AASHTO T 127 from the ship container or storage silo. The shipment shall be sampled and tested at loading and sampled and tested upon arrival at the United States terminal. The vessel shall be sampled at least three locations in the shipment and composited.

The QPL approved cement company shall split the 5-gallon composited sample in half and submit half the composite to the Materials and Testing Section for evaluation.

The remaining half of the sample shall be tested at the approved cement company laboratory which is accredited by AASHTO. The certified test results shall be sent to the Materials and Testing Section.

The approval of the shipment of cement shall be based on the conformance to the Department's requirements. All approved cement delivered to DOTD project(s) shall be accompanied by a properly completed Certificate of Delivery.

Verification sample(s) shall be taken in accordance with the Department's Materials Sampling Manual and submitted to the Materials and Testing Section for testing.

The QPL approved cement company shall be fully responsible for the quality of the foreign cement used on state project(s). *Failure to comply with the Department's requirements can result in the removal of the representative company from the Qualified Products List.*

**DISQUALIFICATION:**

The Department reserves the right to remove any source from the approved list at any time confidence is lost in a manufacturer's ability or intent to produce material of uniform characteristics complying with Departmental specifications. Causes for removal from the Qualified Products List may include, but are not limited to, the following:

1. Failure of the plant to provide mill samples and mill test reports in accordance with this procedure.
2. Failing test results obtained by the Materials Section on consecutive mill samples or project verification samples.

**REQUALIFICATION:**

Once removed from the Qualified Products List, a source may gain reinstatement by submitting a written request to the Materials Engineer Administrator for reinstatement indicating the causes and solutions to the problem areas which caused removal, and satisfying all of the preliminary requirements shown herein.

After examination of the information gained from above, at the Materials Engineer Administrator discretion, the source may be reinstated after a minimum period of three months from the date of request for reinstatement.

**DOTD MATERIALS AND TESTING SECTION COORDINATOR:**

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Approved 01-01-2005

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